

Unit 5

Day 3

Factoring Using Integers

Part 3

Sum or Difference of Cubes

$$x^3 + y^3 = (x + y)(x^2 - xy + y^2)$$

$$x^3 - y^3 = (x - y)(x^2 + xy + y^2)$$

Ex1: $27a^3 - 8 = (3a - 2)(9a^2 + 6a + 4)$

Ex2: $125y^6 + 1 = (5y^2 + 1)(25y^4 - 5y^2 + 1)$

Substitution:

Ex3:

$$2(x+1)^2 + 17(x+1) + 8$$

$$\text{let } y = x+1$$

Ex4:

$$(y+4)^3(y-2) - 27(y-2)$$

$$b^3a - 27a$$

$$a(b^3 - 27)$$

$$a(b-3)(b^2+3b+9)$$

$$(y-2)(y+4-3)[(y+4)^2+3(y+4)+9]$$

$$(y-2)(y+1)(y^2+11y+37)$$

$$\text{let } a = y-2 \quad \text{let } b = y+4$$

HW Wksht 3, pg 42-44 2,9,10,35,36,46-56,63-68 all